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# ISD News and Views

Volume 10 No. 8

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## The 1993 Technology Report

The Information and Telecommunication Technology Report for fiscal years 1994-95 has been completed. The report is a comprehensive overview of current and future technology in state government, the direction in computing and telecommunications for the State of Montana, and agency accomplishments and plans for future projects. Individuals interested in reviewing the report may obtain them from Department Heads, DPAC Members, DPMG Members, Legislative Council, and The State Library.

**OOPS!!! ISD turns to State Lands, hat in hand and apologetic for losing their submission for the report. The State Lands page has been recovered and is available for Technology Report readers. Call Sharon Ranstrom at 444-2918 for your copy.**

## NASIRE Achievement Awards

The National Association of State Information Resource Executives (NASIRE) is soliciting nominations for 1993 Recognition Awards for Outstanding Achievement in the Field of Information Technology. Categories are Statewide Initiative/Policy/Planning/Management, Innovative Use of Technology, Administrative Application, Networking, Micro-applications, Service Applications.

All of us know that Montana has a lot to offer, and that we have made some innovative and/or exciting use of technology. Some of these projects are highlighted in the biennial technology report. If you are responsible for a project or know of a project that should receive recognition, call Sharon Ranstrom at 444-2918 for information about submitting a nomination. The deadline for nominations is March 19.

## ***METNET Compressed Video Information***

The new year brings new locations, new courses, additional uses, and more interest in the new METNET Compressed Video Teleconferencing System which was first put into service September 3, 1992. The Capitol System, which was originally located in room 405, has been moved to room 317. The other existing sites are still in the original room locations, i.e., Bozeman: MSU, McCall Hall; Missoula: U of M, McGill Hall - room 215; Billings: EMC, Cisel Hall, room 2.

A new site will be brought on line January 26, in Kalispell, at Flathead Valley Community College, in room 120 of the Learning Resource Center. The site coordinator for the new installation is Melinda Crawford (756-3828). The proposed next site will be at Miles City Community College, perhaps by June, 1993.

The current schedule of classes offered on the system are as follows:

- Ed CI 500 "Technology Seminar" from MSU to EMC, HLN, FVCC on Monday evenings from 4:00 to 5:00, beginning Feb. 1, 1993.
- Ed CI 580 "Issues and Trends for Media Specialists" from MSU to EMC, HLN, FCVV on Monday evenings from 5:00 to 7:00, beginning Feb. 1, 1993.
- C&I 550 "Foundations of Curriculum and Instruction" from U of M to HLN, and FVCC on Tuesday evenings, 6:00 to 8:00, beginning Feb. 2, 1993.

Additionally, there are several agency, legislative, higher education, and OPI video teleconferences scheduled or anticipated including planning and budget reviews, certification classes (e.g., Water Quality Bureau), and more.

As more people view and try the system, more uses are found. The system is not only expanding, but rapidly becoming a recognized and valuable tool!

--Rick Wine, Network Operations Section

## ***Term Contract Status***

### ***Microcomputer Term Contract Updates***

Addenda reflecting new prices and products of the three microcomputer term contracts were recently distributed. All new products on the lists have been approved, contingent upon vendor certification of compatibility. Agencies should be aware that ISD has not rigorously tested these machines. We will work with you if there are compatibility problems that need to be resolved with the vendor.

If you have any questions about the latest prices or products, please call the vendor or Brett Boutin (444-0515). Term contract price lists will be distributed, upon request, through Zip-Mail. If you would like to be on the distribution list, please call Brett.

### ***Microcomputer Maintenance***

A new form used to place additional equipment on the maintenance term contract has been developed and is now available for electronic distribution. If you would like a copy, please call Brett for assistance.

### ***Management Information Systems Services***

A Request For Proposals (RFP) is being developed for a Management Information Systems (MIS) Services term contract. The term contract is intended to provide MIS services to agencies experiencing "overload" situations, or in other words, a veritable plethora of computing needs. For example, term contract programmer/analysts could be utilized for a large programming project for which you don't have enough staff support. This term contract also will make available a consultant to assist with administrative and staff support activities. If you are interested in this service and would like to comment on the RFP before it is released, or would like to participate in the entire process, please call Brett Boutin (444-0515).



## *OKIDATA Printers*

The term contract for OKIDATA and other non-laser printers expires February 8, 1993. A decision will soon be reached on what vehicle will be used to obtain dot-matrix (or similar) printers in the future. This issue will be discussed at the DPMG meeting on February 10. In the interim, orders for printers will be handled on a case by case basis. Please address any suggestions or comments on this subject to your DP manager before the 10th.

## *Mainframe*

### *New Mainframe Operating System*

On December 5, 1992 the Technical Services Section brought up a new operating system on the IBM 3090-400E mainframe in the Mitchell building. The new operating system is called MVS/ESA. It is the most recent and advanced operating system that IBM delivers.

The main goal of MVS/ESA is to improve overall system throughput and performance by eliminating I/O processing. The process of reading and writing data to disk and tape is **extremely** slow when compared to the speed of the mainframe CPUs.

MVS/ESA attempts to address this problem by doing away with as much I/O as possible. It provides the systems programmers with several new features that allow us to keep the most active data and programs (both system and user) in memory. This eliminates the need for further I/O to fetch it. Memory contents are dynamically managed so that only the data and programs required to satisfy the current processing needs will be in memory.

We have had a month of production processing now on MVS/ESA. Performance data shows that ESA is running better than the old MVS/XA operating system. It is hard to identify the specific areas where the improvements occur. However, the total workload MVS/ESA is able to provide is at least 5% greater than MVS/XA. This means that the life of the 3090-400E mainframe will be extended by 5% because of the new operating system. As we gain

more experience with ESA and implement more of the new features we expect our processing efficiently to improve even more.

--Joe Beausoleil, Technical Services Section

## *Mainframe Trivia*

1. What is MVS/ESA an acronym for?
2. How many CPUs (Central Processing Units) are there in the 3090-400E mainframe in the Mitchell Building data center?
3. What are "Data Spaces" and "Hiper Spaces"?
4. How many users are defined to use TSO?  
A. 500    B. 1000    C. 2000
5. How many users are authorized to use the mainframe?  
A. 3500    B. 5800    C. 7100

--See last page for answers!

--Joe Beausoleil, Technical Services Section

## *Techtalk*

### *Hiding Data in 1-2-3*

In 1-2-3, you can hide data you don't want others to see or change. There are three ways to hide data in 1-2-3. You can hide a cell or range so that it appears blank; you can change the format to hide all entries in a worksheet; or you can hide one or more columns to make them disappear entirely from the worksheet display.

To hide a range of data, select /Range Format Hidden and specify the range to hide. Or, from Wysiwyg, select :Format Color Text and select a color. Then select :Format Color Background and select the same color. To display a range of data, select /Range Format, specify any other format other than Hidden, and then specify the range to display. Or, from Wysiwyg, select :Format Color Text and :Format Color Background and choose different colors for each.

To hide the contents of the entire worksheet, select /Worksheet Global Format Hidden. Select /Worksheet Global Format and choose any other format other than Hidden to display the contents of the entire worksheet.

To hide column(s), select /Worksheet Column Hide and specify the column(s) to hide. Or, from Wysiwyg, move the mouse pointer to the vertical line to the right of the column letter (if you are hiding several columns, move to the rightmost column). Drag the dotted line to left until it meets the line at the left side of the column (or the leftmost column). Column letters of hidden columns do not appear in the worksheet border and ordinary navigation skips over hidden columns. To display hidden columns, select /Worksheet Column Display and specify which of the column(s) to display from the hidden columns that appear with \* (asterisk) after the column letter. Or, from Wysiwyg, hold down SHIFT and click the line at the right of the column to the left of the hidden column. This resets the column to the default width. To display more than one column, click once for each column.

Hidden data can be changed unless the cell(s) that contain the data are protected and global protection is on. Therefore, it's best to protect hidden areas too, or you might accidentally change hidden data.

If you enter new data in a hidden cell, the new entry replaces the old one (but it is still hidden). If you move or copy hidden data, it remains hidden in the new location. When you display the hidden cell, it will have the data and settings assigned to it while it was hidden.

Data in a hidden range is invisible, though the data still exists and formulas that refer to the hidden data are unaffected (unless they are hidden too). The data appears in the control panel unless the cells are protected and global protection is on. The format indicator in the control panel will display H.

If you change the global format to Hidden, only cells with the global format are hidden; cells to which you have assigned a format with /Range Format keep the format you assigned.

If you print a range that contains hidden cells or columns, the contents of the hidden cells do not print.

If you have any questions about hiding data in 1-2-3, please call Irvin Vavruska at 444-2858 or Jerry Kozak at 444-2907, End User Computing.

## *How big is your Print Range*

Before you print a wide worksheet, it's helpful to see what the printout will look like. In Lotus 1-2-3 Releases 2.3, 2.4 and 3.x and in 1-2-3 for windows, you can preview a worksheet before printing it.

As you view the worksheet, suppose you notice the printed copy will not fit on a page. You could compress your data, but this would make your report hard to read. To figure out how much of your report will fit on each page yet remain readable, you must first find the total width of the active print area in the worksheet. Then use the command :Worksheet Page Column Quit to break the pages at a logical place.

To find the total width, use '@cell("width", location)'. For example, enter the following formula in cell A2 of a blank worksheet:

**@CELL("width",A3)**

This formula returns 9, the default cell width. It's easy to figure out the total width of a range when every column in the range has the default width, but most applications have columns of varying widths. Enter the following formula in cell B2 and copy it across range C2..F2

**+A2+@Cell("width",B3)**

This technique gives you the cumulative width of the active range, assuming this worksheet's active area resides in columns A through F. The formula sums the widths of columns A through F, and the last @cell formula in cell F2 returns 54, the total width.

For further information contact Jerry Kozak at 2907 or Irv Vavruska at 2858, End User Computing, ISD.



## ***Windows: Undocumented File Manager Shortcut***

Do you ever want to compare two (or more) directory listings in FILE MANAGER? The default for Windows is to show multiple directories above and below each other, but it can be much more convenient to see the directories side-by-side. To get Windows to display directories side-by-side simply hold down the **SHIFT** key while clicking on **WINDOW** then **TITLE** in the File Manager commands.

To restore the display to its original condition simply click on **WINDOW** then **TITLE** without holding down the **SHIFT** key.

Another undocumented File Manager shortcut is to hold down the **SHIFT** key while clicking **ONCE** on a drive icon. This causes Windows to display that drive *and all the subdirectories below the root*. Note that this will take a little longer to display because it has to read through all the directories on the drive, but it may be worth it if you are in search of a subdirectory but can't remember under which directory it exists.

If you double-click the System Menu icon (the dash in a box at the left upper corner of the title bar) it causes you to exit File Manager. If you hold down the **SHIFT** key while double-clicking that same icon it saves your current File Manager arrangement. If you use this shortcut you won't need to check the **OPTIONS\*SAVE SETTINGS** on **EXIT** item to save your preferred File Manager arrangement. The next time you start up File Manager it will reappear exactly as you last saved it. (By the way, this tip work also works in the Program Manager to save group window arrangements.)

If you have questions about these tips, or about Windows in general contact Denny Knapp in End User Computing, 444-2072.

## ***Scanning Now Available***

ISD has recently installed a flatbed scanner and new software in the operations bureau. Agencies may now have various objects scanned into a personal computer file in various formats, such as TIFF or PCX for signatures, line art or grey-scale pictures. These files may then be

incorporated into word processing documents or other types of files. Scanned images may also be uploaded to the mainframe for printing on the high speed laser printers.

ISD also installed OCR (Optical Character Reader) software with the scanner. This software allows the scanning of type-written pages which can be converted into computer word processing files. This process is not always perfect but very good results usually occur, avoiding the need to re-type documents into word processors.

There are some limitations to this process to keep in mind. The scanner is a Black and White model, producing only black and white output. It can scan color pictures but produces grey-scale output. Since it is a flatbed scanner it is limited to a maximum size input image of 8 and one-half inches by 11 inches. It takes a few minutes to scan in and convert images or type-written pages, so the process is not feasible for very large numbers of scans (i.e., scanning in and converting 50 type-written pages). This is not a process an end-user does for him/herself. Jan Lewis or other personnel from ISD will take your input and produce your required output.

If you have any questions or requests concerning the scanner and its use, please contact Jan Lewis of Operations (444-2558) or Denny Knapp of End User Computing (444-2072).

## ***Multiple Configuration Files***

In the last *News and Views*, a procedure for creating multiple self booting bat files was explained. If you are a Windows 3.1 user you may be experiencing some strange problems with the bat files. For instance, the **autoexec.bat** or **config.sys** file never gets copied. This problem is caused by Microsoft's updated SMARTDrive. The windows smartdrive program performs write-behind caches. When a program writes to your hard disk, SMARTDrive caches the data and waits up to 5 seconds to physically copy it to the disk. This method gets your application back to business faster because it is not delayed waiting for the physical write to take place. One implication of using a write-behind cache is that you should never turn off your PC immediately after a disk access.

Instead, you will need to wait a few seconds to make sure any data held in RAM by SMARTDrive is properly written to disk. As a more efficient way to ensure data integrity when re-booting (manually or via a bat file) or turning off the PC, the following command could be incorporated into your bat file, or manually entered:

```
smartdrv /c
```

This instruction will cause SMARTDrive to flush its write-behind buffers.

### *Mainframe Trivia Answers*

1. MVS/ESA is an acronym for Multiple Virtual Systems / Enterprise Systems Architecture.
2. There are four (4) CPUs in a 3090-400E computer. Generally in the IBM 3090 series of computers, the number of CPUs a specific model contains can be determined by the first digit of the model number. For example, a 3090-200E has 2 CPUs; a 3090-600J has 6 CPUs.
3. "Data Spaces", "Hiper Spaces", and "Hiper Batch" are not places you might go to on STAR TREK's spaceship ENTERPRISE. Believe it or not they are new features introduced by ENTERPRISE SYSTEMS ARCHITECTURE (MVS/ESA). By the way, "hiper" is an acronym for "High PERFORMANCE". Our business loves acronyms!
4. C is the correct answer. There are 2116 users defined to use TSO. During prime shift there are always about 75 active TSO users. The transaction rate for TSO users averages about 5 transactions per second during prime shift.
5. There are currently 5800 users authorized to access the mainframe system.

## *Calendar of Events*

February 10 - Data Processing Managers' Group - regular meeting. Updates to the PC Directions document, wiring standards, OKIDATA term contract, and windows evaluations will be discussed.

## *End Notes*

### *Submit Articles*

If you wish to submit an article to *News and Views* for publication, the following schedule provides dates that articles must be received by in order to be included in the issues listed below:

April Issue	03/12/93
May Issue	04/09/93
June Issue	05/07/93

## *ISD Network Assistance Center 444-2526*

Have a problem? Need ISD assistance or support for any of your information processing needs--either voice or data? The central contact point is the ISD Network Assistance Center.

880 copies of this public document were printed at a cost of \$264.

Distribution costs are \$16.50.

Editors: Dan Mossman & Brett Boutin



# Training Information

All classes will be held in the Training Room in the basement of the Teachers Retirement Building at 1500 6th Ave., unless another location is specified. There is a limit of 12 participants per paid class and 20 participants per demonstration (free) class, unless otherwise announced. The cost of classes is shown below. Please note that these costs are subject to change each July 1st.

To enroll in a class, you must send an enrollment application to the Department of Administration, ISD, Application Services Bureau, Mitchell Building, Helena, MT 59620-0113. If you have questions about enrollment, please call 444-3987. *Once you enroll in a class, the full fee will be charged UNLESS you cancel at least three business days before the first day of class.*

The classes available and their costs are as follows:

<u>Class Name</u>	<u>Cost</u>	<u>Length in Days</u>
MVS\ESA - Differences from MVS\XA	FREE	¼
*Introduction to TSO/SPF	\$ 80.00	1
Introduction to JCL (Job Control Language)	320.00	4
*Introduction to CICS Programming	**	5
*Introduction to IDMS Database Programming	**	5
*IDMS ADS/Online	**	5
*Introduction to CULPRIT	240.00	3
*Subscribing in CULPRIT	FREE	¼
*CULPRIT Programming for IDMS	160.00	2
*Using COMPAREX	40.00	½
*Introduction to SAS: Module 1	20.00	¼
Module 2	20.00	¼
Module 3	200.00	2½
*Novell Network Administration	160.00	2
*Novell NetWare System Manager	**	3
*Novell NetWare Advanced System Manager	**	3
*Novell Netware Service & Support	**	5
*PC Memory Management Options and Considerations	FREE	¼
*Windows Purchase, Installation and Use Considerations	FREE	¼
*Windows for the Technical Support Team	**	2
Beginning Microcomputer Skills	80.00	1
Fundamentals of DOS	80.00	1
Intermediate DOS	80.00	1
*Introduction to Novell Networks	40.00	½
*Introduction to Windows	80.00	1
Introduction to WordPerfect (5.0 or 5.1)	120.00	1½
*Advanced Features of WordPerfect 5.0	120.00	1½
WordPerfect (5.0 or 5.1) Complex Document Functions	40.00	½
More WordPerfect (5.0 or 5.1) Complex Document Functions	40.00	½
*WordPerfect 5.1 Tables	40.00	½
*WordPerfect 5.1 Columns and Math Functions	40.00	½
WordPerfect 5.1 Graphics	80.00	1
WordPerfect Merge and Sort Functions	40.00	½
WordPerfect 5.1 Macros	80.00	1
WordPerfect 5.1 Tips and Tricks	FREE	¼

*Conversion from WordPerfect 5.0 to 5.1	FREE	¼
*Spreadsheet Design and Documentation	80.00	1
*Conversion from Lotus 1-2-3 Rel. 2.2 to Rel. 3.1	FREE	¼
Introduction to Lotus 1-2-3, (Release 2.3 or 3.1)	160.00	2
*Intermediate Lotus 1-2-3, (Release 2.3 or 3.1)	80.00	1
Lotus 1-2-3 WYSIWYG Features (Release 2.3 or 3.1)	40.00	½
Lotus 1-2-3 Graphics (Release 2.3 or 3.1)	40.00	½
Lotus 1-2-3, Release 3.1, 3-Dimensional Spreadsheets	40.00	½
Lotus 1-2-3 Printing (Release 2.3 or 3.1)	40.00	½
*Freelance	80.00	1
Lotus 1-2-3 Macros (Release 2.2, 2.3, or 3.1)	160.00	2
*Introduction to Lotus 1-2-3 Database Features	160.00	2
*Introduction to PFS:Professional File, Ver. 2.0	80.00	1
Micro Database Concepts and Design	80.00	1
Introduction to R:Base, Release 3.1	200.00	2½
Advanced R:Base Release 3.1	160.00	2
*R:Base Query and Reports (Rel. 3.1)	80.00	1
*R:Base Views (Rel. 3.1)	FREE	¼
*Intermediate R:Base (Rel. 3.1)	160.00	2
*Introduction to dBASE III+	280.00	3½
*State Telephone Training	FREE	¼
*Orientation to State's Computer Center	FREE	¼
Introduction to IBM's Library Reader	FREE	¼

\* This class is not scheduled during the time covered in this issue.



# Training Calendar

## Data Network/Mainframe Classes

Feb. 11, 16 a.m.	Introduction to IBM Library Reader
Feb. 23, 24, 25, 26	Introduction to JCL

## Microcomputer Classes

Feb. 17	Fundamentals of DOS
Feb. 22	Intermediate DOS
Mar. 1	Beginning Microcomputer Skills
Apr. 12	Fundamentals of DOS

## Word Processing Classes

Feb. 8, Feb. 9 a.m.	Introduction to WordPerfect (5.0 or 5.1)
Feb. 10	WordPerfect Macros
Feb. 18 a.m.	WordPerfect Complex Document Functions
Feb. 19 a.m.	More WordPerfect Complex Document Functions
Mar. 11	WordPerfect Graphics 5.1
Mar. 16 a.m.	WordPerfect Tips & Tricks
Mar. 29, Mar 30 a.m.	Introduction to WordPerfect (5.0 or 5.1)
Mar. 31 a.m.	WordPerfect Merge & Sort Functions
Apr. 19, Apr. 20 a.m.	Introduction to WordPerfect (5.0 or 5.1)
Apr. 28 a.m.	WordPerfect Complex Document Functions
Apr. 28 p.m.	More WordPerfect Complex Document Functions

## Spreadsheet Classes

Feb. 3 & 4	Introduction to Lotus 1-2-3 (Release 2.3 or 3.1)
Mar. 2 & 3	Introduction to Lotus 1-2-3 (Release 2.3 or 3.1)
Mar. 10 a.m.	Lotus 1-2-3 WYSIWYG Features (Release 2.3 or 3.1)
Mar. 10 p.m.	Lotus 1-2-3 Graphics (Release 2.3 or 3.1)
Mar. 17 a.m.	Lotus 1-2-3 Printing
Mar. 17 p.m.	Lotus 1-2-3 3-D Spreadsheets
Apr. 1 & 2	Lotus Macros
Apr. 29 & 30	Introduction to Lotus 1-2-3 (Release 2.3 or 3.1)

## Database Classes

Mar. 8 & 9	Advanced R:Base, Release 3.1
Apr. 5	Micro Database Concepts & Design
Apr. 6, 7, Apr. 8 a.m.	Introduction to R:Base

## Communication Classes

## *Data Network/Mainframe Classes*

**INTRODUCTION TO JCL (JOB CONTROL LANGUAGE):** presented by Denny Knapp of the Application Services Bureau

**DATE:** February 23, 24, 25, 26, 1993  
**TIME:** 8:30 a.m. to 4:30 p.m. each day  
**PREREQUISITE:** Introduction to TSO/SPF  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course is designed for programmers, I/O controllers, operations technicians or users of report-writing software who submit jobs on the State's mainframe system.

The course will cover:

- Syntax and coding of IBM Job Control Language (JCL)
- MVS operating system
- Handling datasets and device assignments
- Some of the IBM utilities
- Troubleshooting and interpreting system messages
- Hands-on experience writing and executing JCL

**INTRODUCTION TO I.B.M.'s LIBRARY READER:** presented by Denny Knapp of the Application Services Bureau

**DATES:** February 11, 1993  
February 16, 1993  
**TIMES:** 9:00 am to 11:00 am  
**PREREQUISITE:** None  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This free class will provide an introduction to the I.B.M. Online Library Reader software soon to be made available on the State personal computer network. Library Reader provides the ability to access, on-line from your workstation, the I.B.M. mainframe hardware and software manuals. This will greatly reduce the need for hard copy mainframe manuals. Library Reader provides several advanced capabilities such as indexed or approximate searches, hypertext linking, logical grouping of manuals into "bookshelves", user entered "margin notes", and much, much more. This session will have some hands-on work so class sizes will be limited.

**MVS\ESA - DIFFERENCES FROM MVS\XA:** presented by Denny Knapp of the Application Services Bureau

**DATE:** February 5, 1993  
**TIME:** 1 p.m. to 3 p.m.  
**PREREQUISITE:** An understanding of MVS\XA, Introduction to TSO\ISPF, and Introduction to JCL are recommended  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This free session will review the major differences between MVS\XA, the operating system formerly used on the state mainframe computer, and MVS\ESA, the operating system recently implemented. This will be an overview of changes as they apply to end-users and development staff. Various subjects will be discussed, such as changes to ISPF and JCL coding.



## *Microcomputer Classes*

**BEGINNING MICROCOMPUTER SKILLS:** presented by the staff of The Computer School

**DATE:** March 1, 1993  
**TIME:** 8:30 a.m. to 3:30 p.m.  
**PREREQUISITE:** None  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course will give participants brief hands-on experience with microcomputers. The following topics will be covered:

- The Machine
- The Operating System
- Word Processing
- Spreadsheets and Graphics
- File Management
- Communications

Most class time will be spent using microcomputers and software. This course helps develop a positive attitude toward using microcomputers and teaches their basic functions. This class--or its equivalent--is a prerequisite for our other microcomputer courses.

**FUNDAMENTALS OF DOS:** presented by the staff of The Computer School

**DATE:** April 12, 1993  
**TIME:** 8:30 a.m. to 3:30 p.m.  
**PREREQUISITE:** Beginning Microcomputer Skills  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

"Fundamentals of DOS" is intended for microcomputer users who need to know more about controlling the microcomputer through its operating system. Programming experience is NOT required. Topics to be covered include:

- What is DOS? Why is it necessary to know about it?
- DOS names for peripherals
- File naming
- Set-up files such as CONFIG.SYS
- Internal DOS commands - DIR, ERASE, RENAME, TYPE, COPY and their variations
- External commands - FORMAT, SYS, DISKCOPY, CHKDSK, MODE
- Interpreting batch files
- Backup procedures

**INTERMEDIATE DOS:** presented by the staff of The Computer School

**DATE:** February 22, 1993  
**TIME:** 8:30 a.m. to 3:30 p.m.  
**PREREQUISITE:** Fundamentals of DOS or equivalent  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class is designed to follow the "Fundamentals of DOS" class and to give the user a better understanding of and increased ability to use DOS. It is not designed for programmers and does not cover all the advanced features of the operating system. The following topics are covered:

- ATTRIB
- Batch File Creation
  - EDLIN
  - Batch file commands
- DISKCOMP
- Filters (FIND, MORE)
- JOIN
- LABEL
- MODE
- REPLACE
- SELECT
- XCOPY

## *Word Processing Classes*

**INTRODUCTION TO WORDPERFECT:** presented by the staff of The Computer School

**DATES:** February 8 and 9, 1993  
 March 29 and 30, 1993  
 April 19 and 20, 1993

**TIMES:** 8:30 a.m. to 3:30 p.m. on first day  
 8:30 a.m. to noon on second day

**PREREQUISITE:** Beginning Microcomputer Skills or equivalent

**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class is a generic introduction to WordPerfect for new users of release 5.0 or 5.1. Experience with WordPerfect is not necessary. Participants will go through the fundamentals of creating, formatting, editing and printing documents. Some advanced features will also be covered, including checking spelling, finding a word or phrase, marking blocks of text, moving text and listing/retrieving document files.

**WORDPERFECT MERGE AND SORT FUNCTIONS:** presented by staff of the Computer School

**DATE:** March 31, 1993

**TIME:** 8:30 a.m. to noon

**PREREQUISITE:** Introduction to WordPerfect 5.0 or 5.1

**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class will cover the file merge and sort features of WordPerfect. Students currently using WordPerfect 5.0 or 5.1 will have hands-on practice with the steps needed to generate files sorted in a variety of ways. They will also learn to merge primary and secondary files for mass mailings, for example, and to set up files for keyboard merges.

**WORDPERFECT COMPLEX DOCUMENT FUNCTIONS:** presented by staff of the Computer School

**DATES:** February 18, 1993  
 April 28, 1993

**TIME:** 8:30 a.m. to noon

**PREREQUISITE:** Introduction to WordPerfect 5.0 or 5.1

**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class will cover Master and Subdocument design as well as creation of tables of contents. Using WordPerfect's Master Document feature allows creation of larger or more complex documents while providing more manageable and editable documents. Examples are reports containing multiple chapters or requiring tables of contents, lists of figures and tables, outlines, headers and/or footers. Students



currently using WordPerfect 5.0 or 5.1 will learn WordPerfect features that make it easy to generate tables of contents, lists and outlines and to combine subdocuments into a complex master document. Students will learn how to build, edit and expand a master document that includes lists of the document's contents.

**MORE WORDPERFECT COMPLEX DOCUMENT FUNCTIONS--FONTS, STYLES AND LISTS:**  
presented by staff of the Computer School

**DATES & TIMES:** February 19, 1993 8:30 a.m. to 12:00 noon  
April 28, 1993 1:00 p.m. to 4:30 p.m.  
**PREREQUISITE:** WordPerfect (5.0 or 5.1) Complex Document Functions  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class will expand upon the concepts covered in the prerequisite class. Persons currently using WordPerfect 5.0 or 5.1 will learn WordPerfect features that they can use to create a variety of reports and other complex documents. Students will learn to incorporate lists of tables and figures, headers and footers, footnotes or endnotes, and cross-referencing into the Master and Subdocument design. The class will also cover the use of Style, Font, Text In/Out, Graphics and Compose functions for document design and layout. This class will be taught using WordPerfect 5.1, but concepts and functions covered are available in WordPerfect 5.0.

**WORDPERFECT 5.1 GRAPHICS:** presented by staff of the Computer School

**DATE:** March 11, 1993  
**TIME:** 8:30 a.m. to 3:30 p.m.  
**PREREQUISITE:** Introduction to WordPerfect  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class will cover the creation and use of WordPerfect 5.1 graphics. Students will learn to create and edit graphic figures, boxes and lines. Hands-on exercises will include using these boxes, figures and lines with a variety of fonts and with the compose function. The class will also cover changes in the Setup and Print functions often associated with graphics.

**WORDPERFECT 5.1 TIPS AND TRICKS:** presented by Kyle Wynn of Application Services Bureau

**DATE:** March 16, 1993  
**TIME:** 9:00 a.m. to 11:00 a.m.  
**PREREQUISITE:** Introduction to WordPerfect (5.0 or 5.1); Advanced Features of WordPerfect (5.0 or 5.1) is recommended  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This free session demonstrates tips and a variety of tricks for using such features as edit, block, tables, columns, tabs, keyboard, merge and sort, graphics, and print. The focus is on some of the more complex desktop publishing capabilities of WordPerfect. The more familiar you are with the basic and some advanced features, the more you will gain from this demonstration. In addition to hands-on practice, there will be a hand-out with detailed instructions for each of the features and tips presented.

**WORDPERFECT 5.1 MACROS:**

presented by staff of the Computer School

**DATE:** February 10, 1993  
**TIME:** 8:30 a.m. to 3:30 p.m.  
**PREREQUISITE:** Introduction to WordPerfect 5.0 or 5.1  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This is a seminar class that will cover the theory and construction of basic WordPerfect macros. Class will begin with simple hot key and named macros and proceed through the introductory level of the macro language. Special macros will be created such as capturing inside addresses for printing envelopes and building simple menus for lists of commonly used tasks. Students are encouraged to bring examples of tasks for instructor assisted class projects.

### *Spreadsheet Classes*

**INTRODUCTION TO LOTUS 1-2-3, RELEASE 2.3 OR 3.1:**

presented by the staff of The Computer School

**DATES:** February 3 & 4, 1993  
March 2 & 3, 1993  
April 29 & 30, 1993  
**TIMES:** 8:30 a.m. to 4:30 p.m. each day  
**PREREQUISITE:** Beginning Microcomputer Skills  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class is a generic introduction to Lotus 1-2-3 for persons with little or no Lotus experience. It will consist of instructions and hands-on practice, with lab time available for building spreadsheets of the participants' choosing.

The class will cover design, creation, printing and editing of spreadsheets. Additional topics will include selected graphic features, the use of formulae to connect spreadsheets, and the opening of multiple files at the same time. Students will learn about new WYSIWYG (What You See Is What You Get) features of Releases 2.3 and 3.1 such as enhanced printing of spreadsheets and graphs.

**LOTUS 1-2-3 WYSIWYG FEATURES:** presented by the staff of The Computer School

**DATE:** March 10, 1993  
**TIME:** 8:30 a.m. to noon  
**PREREQUISITE:** Introduction to Lotus 1-2-3  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course is intended for users of Release 2.3, 3.1 or 3.1+ who are already using Lotus 1-2-3 to create spreadsheets. It introduces students to the WYSIWYG (What You See Is What You Get) features of Lotus 1-2-3. The class consists of lecture and hands-on practice with the following features:

- Format--fonts, boldface, italics, underline, shadow, and outline
- Text--ranges, alignment, edit
- Screen display, zoom and customization
- Graphics within a worksheet--adding, enhancing, changing size or location
- Page layout
- Previewing and printing
- Advanced WYSIWYG features



**LOTUS 1-2-3 GRAPHICS:** presented by the staff of The Computer School

**DATE:** March 10, 1993  
**TIME:** 1:00 - 4:30 PM  
**PREREQUISITE:** Introduction to Lotus 1-2-3  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course is intended for users of Release 2.3, 3.1 or 3.1+ who are already using Lotus 1-2-3 to create spreadsheets. After a review of the basic Graph features, students will explore options such as automatic graph creation, group data ranges, graph windows, graph areas and Named versus Saved graphs. The class will then cover graphic display and print options. Students will learn to select colors, patterns, fonts and graph types and to save graphs and incorporate graphics into their spreadsheets.

**LOTUS 1-2-3 PRINTING, RELEASE 2.3 OR 3.1 OR 3.1+:** presented by the staff of The Computer School

**DATE:** March 17, 1993  
**TIME:** 8:30 am to 12:00 noon  
**PREREQUISITE:** Introduction to Lotus 1-2-3  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course is intended for users of Release 2.3, 3.1, or 3.1+ who are already using Lotus 1-2-3 to create spreadsheets and who want to have more control over printing. After a review of basic printing features, students will explore the Print Options menu, embedded printer control codes, printer setup strings, and creating .PRN files. The class will also cover using menu commands to print compressed, standard, or expanded characters; print compressed or standard pitch (line spacing); and print fonts and colors available on your printer. Other topics covered include automatic and manual page compression, print preview, and an introduction to WYSIWYG as it pertains to controlling page layout.

**LOTUS 1-2-3, RELEASE 3.1, 3-DIMENSIONAL SPREADSHEETS:** presented by the staff of The Computer School

**DATE:** March 17, 1993  
**TIME:** 1:00 pm to 4:30 pm  
**PREREQUISITE:** Introduction to Lotus 1-2-3  
**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This course is intended for users of Release 3.1 who are using Lotus 1-2-3 to create spreadsheets. It covers the purposes of three dimensional spreadsheets and provides hands-on practice with multiple (3-dimensional) worksheets within a file. Features covered include:

- Multiple worksheet uses
- Inserting and deleting worksheets
- Navigation among worksheets
- Working with three-dimensional ranges
- Perspective view
- Using group mode
- Working with more than one file in memory
- Navigating among files

**LOTUS 1-2-3 MACROS:** presented by Irvin Vavruska of the Application Services Bureau

**DATES:** April 1 and 2, 1993

**TIMES:** 8:30 a.m. to 4:30 p.m. each day

**PREREQUISITE:** Beginning and Advanced Lotus 1-2-3 Release 2.2

**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class is designed for those who want to learn about Lotus 1-2-3 macros. It will consist of instruction, demonstrations, and hands-on practice with lab time available to build spreadsheets of participant's choosing. The class will concentrate on using 1-2-3 Release 2.3 to design, create, and edit macros to perform simple operations or redundant tasks. The material covered will apply to all releases of Lotus 1-2-3 (2.2, 2.3, and 3.1). It will include writing and debugging macros, using the keystroke recorder, and using advanced macro commands.

### *Database Classes*

**MICRO DATABASE CONCEPTS AND DESIGN:** presented by Denny Knapp of the Application Services Bureau

**DATE:** April 5, 1993

**TIME:** 8:30 a.m. to 4:30 p.m.

**PREREQUISITE:** Beginning Microcomputer Skills

**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class is designed to give participants a preliminary understanding of what a relational database is and how it compares to other products like Lotus 1-2-3 and PFS:Professional File. The class teaches database design techniques and is a prerequisite for other database classes offered by ISD.

**INTRODUCTION TO R:BASE, RELEASE 3.1:** presented by the staff of The Computer School

**DATES:** April 6, 7, and 8, 1993

**TIMES:** 8:30 a.m. to 4:30 p.m. on first and second days

8:30 a.m. to noon on third day

**PREREQUISITE:** Beginning Microcomputer Skills, Micro Database Concepts and Design and Fundamentals of DOS

**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class will give participants hands-on experience creating a database and developing a simple application with R:Base 3.1. The application will include database updates, queries, and simple form and report generation. The R:Base menu system will be used to develop the application. This class will not cover the R:Base command mode or programming other than menu system application development.

**ADVANCED R:BASE, RELEASE 3.1:** presented by Denny Knapp of the Application Services Bureau

**DATES:** March 8 & 9, 1993

**TIME:** 8:30 am to 4:30 pm

**PREREQUISITE:** Introduction to R:Base

**LOCATION:** Basement of the Teachers Retirement Bldg. at 1500 6th Ave.

This class will expand on topics covered in "Introduction to R:Base." Topics include sophisticated forms and reports, multi-table operations, development of systems using the "Application Express," and the development and use of customized R:Base programming.



*ISD CLASS ENROLLMENT APPLICATION*  
*COMPLETE THIS APPLICATION IN FULL AND*  
*RETURN IT TO ISD'S APPLICATION SERVICES BUREAU*  
*PRIOR TO THE FIRST DAY OF CLASS*

COURSE DATA

Course Requested: \_\_\_\_\_

Date Offered: \_\_\_\_\_

STUDENT DATA

Name: \_\_\_\_\_

Soc. Sec. Number (for P/P/P): \_\_\_\_\_

Agency & Division: \_\_\_\_\_

Mailing Address: \_\_\_\_\_

Phone: \_\_\_\_\_

How have you met the required prerequisites for this course? Explain, giving the class(es) taken, tutorial(s) completed, and/or experience.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

BILLING INFORMATION/AUTHORIZATION

ISD Billing Number (5 digits): \_\_\_\_\_

Authorized Signature: \_\_\_\_\_

FULL CLASS FEE WILL BE BILLED TO THE REGISTRANT UNLESS  
CANCELLATION IS MADE THREE BUSINESS DAYS BEFORE  
THE START DATE OF THE CLASS.

**SEND COMPLETED FORM TO:**

**ISD APPLICATION SERVICES BUREAU, DEPARTMENT OF ADMINISTRATION**

DEPARTMENT OF ADMINISTRATION  
INFORMATION SERVICES DIVISION  
ROOM 21, MITCHELL BLDG  
PO BOX 200113  
HELENA MT 59620-0113

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